

Course No. 1853

Oil Production and Processing Facilities Training Course

**UPSTREAM OPERATIONS, EXPLORATION, DRILLING, RESERVOIR &
PRODUCTION
OIL & GAS**

DURATION

5 Days

DELIVERY

Classroom



Course Overview

This comprehensive training course provides a practical and integrated understanding of oil production and processing facilities, covering the major systems, equipment, processes, operational requirements, and integrity considerations involved in moving crude oil from production wells through initial treatment and processing. It is designed to strengthen participants' understanding of facility operations and their impact on production efficiency, safety, reliability, and asset performance.

The course examines the complete production and processing chain, including well fluids gathering, separation, crude oil treatment, gas handling, produced water management, stabilization, dehydration, desalting, compression, pumping, storage, metering, and transfer systems. Participants will understand how these systems interact and how operating conditions influence production performance and equipment reliability.

A strong focus is placed on process control, operating parameters, equipment performance, production optimization, troubleshooting, process safety, and facility integrity. Participants will explore common operational challenges such as pressure fluctuations, emulsions, foaming, corrosion, scaling, sand production, water breakthrough, equipment fouling, leaks, and process instability.

Through practical exercises, process case studies, and troubleshooting scenarios, participants will develop the ability to evaluate facility performance, identify bottlenecks, optimize operating conditions, and support safe and reliable production. The course also addresses the integration of operations, maintenance, inspection, engineering, and asset integrity to achieve sustainable facility performance.

Objectives

- By the end of the course, participants will be able to:
- Analyze the overall configuration and operating principles of oil production and processing facilities.
- Explain the major stages involved in crude oil gathering, separation, treatment, stabilization, storage, and transfer.
- Identify the functions and operating requirements of major production and processing equipment.

- Evaluate key operating parameters affecting facility capacity, efficiency, and production quality.
- Analyze separation, dehydration, desalting, compression, pumping, and produced water treatment processes.
- Evaluate common operational problems and identify their potential causes.
- Apply practical troubleshooting approaches to production and processing facility problems.
- Assess the impact of corrosion, erosion, scaling, fouling, sand, and process instability on facility performance.
- Identify production bottlenecks and opportunities for process optimization.
- Integrate process monitoring, maintenance, inspection, and asset integrity requirements.
- Strengthen process safety and operational risk management within oil production facilities.
- Develop strategies for improving facility reliability, production efficiency, and operational continuity.

Who Should Attend

This course is designed for oil and gas production engineers, process engineers, facility engineers, operations engineers, production supervisors, field operators, process operators, and technical professionals involved in crude oil production and processing facilities.

It is particularly suitable for professionals responsible for separators, crude oil treatment systems, dehydration and desalting units, gas handling, compression, produced water treatment, pumping, storage, metering, pipelines, and associated production equipment.

The program is also relevant to operations and production managers, maintenance and reliability professionals, inspection and asset integrity specialists, process safety personnel, engineering managers, and decision-makers responsible for improving facility performance, production reliability, safety, and asset utilization.

Learning Outcomes

- Upon completion of the course, participants will be able to:
- Describe the complete oil production and processing facility flow from well fluids to crude oil export.

- Identify major process systems and their functions within an oil production facility.
- Explain the operating principles of separators, heaters, treaters, dehydrators, desalters, compressors, pumps, tanks, and metering systems.
- Evaluate pressure, temperature, flow, level, water cut, and other critical operating parameters.
- Analyze separation and crude oil treatment performance.
- Evaluate dehydration, desalting, stabilization, gas handling, and produced water treatment operations.
- Identify process bottlenecks, equipment constraints, and operating inefficiencies.
- Diagnose common facility operating problems and recommend corrective actions.
- Assess corrosion, erosion, scaling, fouling, sand, and other threats to facility performance.
- Apply production optimization principles to improve throughput and process stability.
- Integrate facility operations with maintenance, inspection, reliability, and asset integrity requirements.
- Strengthen process safety and emergency response awareness within production facilities.
- Interpret facility performance indicators and operating trends.
- Develop practical improvement opportunities for production efficiency and equipment reliability.
- Support safe, stable, and cost-effective operation of oil production and processing facilities.

Course Outline

DAY 01

Oil Production Facilities & Surface Processing Fundamentals

- Overview of oil production systems from wellhead to export.
- Production gathering systems and field flowlines.
- Well fluids composition and production characteristics.
- Separation of oil, gas, water, and solids.
- Primary separation equipment and operating principles.
- Facility process flow diagrams and major process interfaces.

PRACTICAL APPLICATION

Trace and analyze the process flow of a typical oil production facility from wellhead to crude oil export.

DAY 02

Crude Oil Processing & Treatment

- Three-phase separation and separator operating parameters.
- Crude oil heating and temperature control.
- Emulsion formation, treatment, and separation challenges.
- Crude oil dehydration and desalting processes.
- Crude stabilization and vapor pressure control.
- Produced water separation and treatment.

PRACTICAL APPLICATION

Analyze crude oil treatment performance and identify operational improvements for separation, dehydration, and desalting.

DAY 03

Gas Handling, Compression, Pumping & Storage

- Associated gas handling and processing systems.
- Gas compression principles and compressor operating considerations.
- Pumping systems and crude oil transfer requirements.
- Storage tanks, tank operations, and inventory management.
- Metering, measurement, sampling, and custody transfer fundamentals.
- Pipeline and export system interfaces.

PRACTICAL APPLICATION

Evaluate gas compression, pumping, storage, and transfer system performance and identify potential operating constraints.

DAY 04

Facility Operations, Troubleshooting & Process Optimization

- Monitoring pressure, temperature, flow, level, water cut, and other critical parameters.
- Common production facility operating problems and their root causes.

DAY 04 — CONTINUED

- Corrosion, erosion, scaling, fouling, sand production, and equipment degradation.
- Process instability, pressure fluctuations, foaming, emulsions, and liquid carryover.
- Identifying bottlenecks and optimizing operating conditions.

PRACTICAL TROUBLESHOOTING AND CORRECTIVE ACTION STRATEGIES.**PRACTICAL APPLICATION**

Diagnose a simulated production facility problem and develop an integrated troubleshooting and optimization plan.

DAY 05

Facility Integrity, Process Safety & Performance Improvement

- Integrating operations with maintenance, inspection, reliability, and asset integrity.
- Process safety principles for oil production and processing facilities.
- Operating risk identification and control.
- Emergency response considerations and safe shutdown requirements.
- Production and facility performance indicators.
- Continuous improvement and production optimization strategies.

FINAL WORKSHOP

Develop an integrated performance improvement plan for an oil production and processing facility covering process optimization, equipment reliability, integrity risks, operational controls, and performance indicators.

Register or Request More Information

Course page: <https://quest-training.com/courses/oil-production-and-processing-facilities-training-course>

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